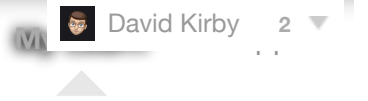




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[Course Home](#) [Module 2 - Statistical Learning Theory](#) **Take Test: Quiz 2.3 Statistical learning theory**

Take Test: Quiz 2.3 Statistical learning theory

Test Information

Description

Instructions

Multiple Attempts This test allows multiple attempts.

Force Completion This test can be saved and resumed later.

QUESTION 1

0.015 points

Saved

Mark the WRONG sentence

- ☐ The VC dimension of a linear machine is equal to the dimension of the space plus one.
- ☒ The VC dimension only works in linear machines.
- ☐ The VC dimension is a measure of the complexity of a classification machine.
- ☐ If the VC dimension of a machine is higher than the number of training data, the machine will probably overfit.

QUESTION 2

0.014 points

Saved

The VC dimension is a way to determine the maximum complexity of a learning machine.

- ☒ True

☐ False

QUESTION 3**0.014 points****Saved**

If the VC dimension of a machine is higher than the number of samples in the training set, then the machine is guaranteed to overfit:

- ☐ because it will always correctly classify all points regardless of the control of the complexity.
- ☒ if we do not limit the complexity, because the machine will be able to shatter all the points.
- ☐ Not true. The higher the VC dimension is the better the machine will work.

QUESTION 4**0.014 points****Saved**

The empirical risk is

- ☐ the expectation of the error over the training samples.
- ☒ the sample average of the error over the training samples.
- ☐ the sample average of the error over the test samples.
- ☐ the expectation of the error over the test samples.

QUESTION 5**0.014 points****Saved**

The actual risk is the expectation of the error over the test samples, and it is bounded by the empirical risk plus the structural risk, where

- ☐ the structural risk is a term that does not depend on anything related to the data, but only on the VC dimension.
- ☐ the structural risk is a term that decreases when the VC dimension

✖ Question Completion Status:

- ☐ the structural risk increases with the VC dimension and the number of data.
- ☒ the structural risk is a term that increases of the VC dimension of the classifier, decreases with the number of training data. The actual risk is bounded with a probability less than 1.

QUESTION 6**0.014 points****Saved**

In Support Vector Machines, the complexity of the machine is limited by minimizing h , which is equivalent to minimize $\|w\|^2$

- ☒ True
☐ False

QUESTION 7**0.015 points****Save Answer**

In SVM the minimization of the complexity is done by minimizing h , which is equivalent to minimize the distance d of the margin.

- ☐ True
☒ False

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

Save All Answers

Save and Submit